Replace Obsolete Critical 15K PSI Components

Completed Technology Project (2015 - 2016)

Project Introduction

The primary objective of this project is to develop 6 and 8 inch 15,000 psi rated top entry ball valve. This valve will meet a unique NASA requirement, not currently available from other commercial sources. For rocket engine testing, it isn't uncommon for required pressures to be up to 15,000 psi. However, many of the high pressure valves in use on the test stands at SSC required for this type of testing are over 40 years old, and are no longer supported by the original vendors, may have related safety issues, are extremely expensive to repair and can take a very long time to rebuild—due to lack of parts. Therefore, replacing the existing 15,000 psi ball valves currently in place with updated designs is required.

SSC utilizes large, 15,000 psi valves to isolate high pressure gaseous hydrogen and gaseous nitrogen systems utilized for testing of large scale rocket components. The current suite of valves for one of the test stands at SSC, E2, were built over 40 years ago. These valves are no longer manufactured or supported. The valves are expensive to maintain and require longer repair times since parts and fixtures are currently unavailable because they are no longer manufactured. Therefore, for this project a prototype valve will be designed, built and tested

Anticipated Benefits

Since there is a lack of currently available replacements and replacement parts for listed critical components (valves), there is a possibility that failure of the components would not only require significant cost to repair, but also has to potential to significantly impact any rocket engine testing programs dependent on the components (valves). Therefore, development and procurement of these components will significantly reduce the risk to NASA missions, as well as greatly increase functional reliability of current test facilities operations.

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Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Center Independent Research & Development: SSC IRAD

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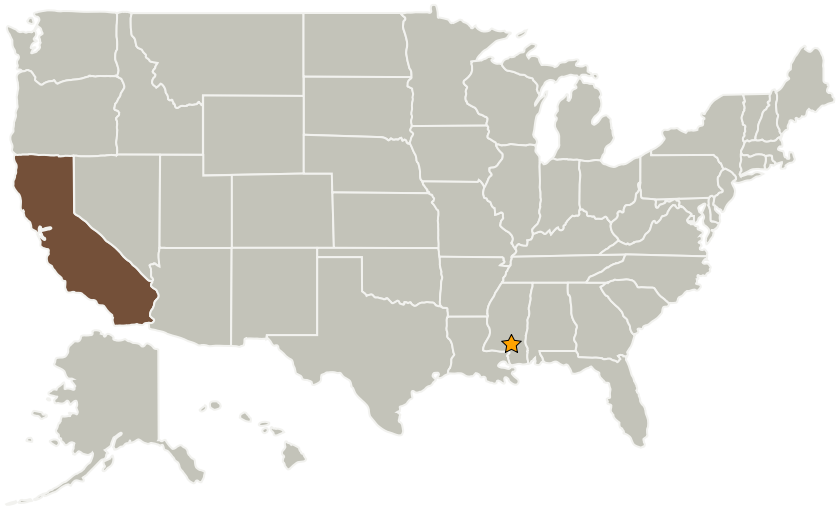
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi

Co-Funding Partners	Type	Location
Precision Fluid Controls Inc	Industry Women-Owned Small Business (WOSB)	

Primary U.S. Work Locations
California

Project Management

Program Manager:
Ramona E Travis

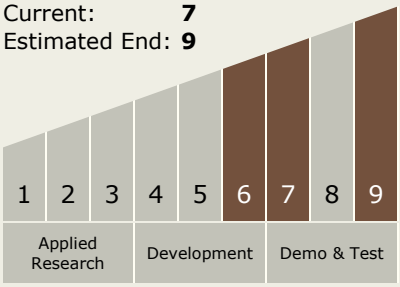
Project Manager:
Gary L Benton

Principal Investigator:
Steve E Taylor

Co-Investigator:
Peggy A Stevens

Technology Maturity (TRL)

Start: **6**
Current: **7**
Estimated End: **9**



Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.1 In-Situ Resource Utilization
    - TX07.1.3 Resource Processing for Production of Mission Consumables

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Target Destination

Earth